NUEXCO

SOUTH AFRICA'S ROLE IN THE URANIUM MARKET

By

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Nuexco's Luncheon
during the

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Introduction

It is a pleasure to be in the United States again, and a privilege to address an audience so prominent in the uranium and nuclear power business.

By way of introduction, I thought I would give you a few facts about my country, the Republic of South Africa. I will then tell you about the history, economics and structure of the South African gold and uranium mining industry, and, finally, I will discuss the marketing of and market for South African uranium.

South Africa

Situated at the southern tip of Africa, South Africa is about one-eighth the size of the USA and two-thirds the size of the EEC. It has a multi-national population of 25.5 million, of whom 17.2 million are Blacks coming from ten separate ethnic groups. The predominant business language is English. There are four main Black language groups and twenty-three sub-groups.

South Africa is endowed with substantial natural resources, having the largest reserves in the free world of gold, platinum-group metals, manganese ore, vanadium, chrome ore, fluourspar and gem diamonds, and is the world's largest exporter of most of these minerals. It is one of the world's largest exporters of steam coal, the second largest exporter of uranium, and it is 50 percent self-sufficient in oil produced from coal in SASOL's liquifaction plants.

The South African economy is a modern industrial one based on manufacturing, mining and agriculture, with a gross domestic product in 1983 of approximately 80 billion Rands (approximately US $79 billion). Total foreign investments in South Africa exceed $30 billion and have been growing at 14 percent per annum. There are 375 US companies invested in South Africa and the value of direct and indirect US investment is approximately $5 billion. South Africa's international investment risk rating currently is reported to be its most favorable ever at about tenth position. With regard to foreign trade, South Africa ranks in the world's twenty largest trading nations, and in 1983 the total value of foreign trade was $32 billion. In 1982, the USA became South Africa's largest trading partner, with total trade between our two countries valued at just over $4 billion, followed by the United Kingdom, the Federal Republic of Germany and Japan. South Africa is one of the world's seven major food exporting countries. Our national economic policies support free enterprise and stress reliability as a trading partner.

As regards infrastructure, South Africa has 23,000 kilometers of railways, our national airline has 35 regular flights to 26 countries a week, and 18 foreign airlines operate regular services to South Africa. The country has some of the continent's largest natural harbors, through which the bulk of our exporting takes place. South Africa has direct telephone dialing to 41 countries. Our national electric utility, Escom, supplies approximately 94 percent of the country's electricity from its installed capacity of approximately 24,000 MWe, and has a further 20,000 MWe of capacity currently planned or under construction. Ninety percent of Escom's electricity is coal-based, the balance being uranium and hydro.

Politically, two important events have taken place in our country in the last six months. First, South Africa has adopted a new constitution, in place of our inherited Westminster system, that absorbs Coloureds and Asians (14 percent of the populace) into the political structure formerly controlled only by Whites (18 percent of the populace). Second, Prime Minister P. W. Botha in March signed the Nkomati Accord with President Samora Machel of Mozambique. The pact is the second non-aggression treaty entered into with a neighboring country in the past two years.

The Nkomati Accord, calling for the renunciation of the use of force by both parties and prohibiting the support of insurgents hostile to either government, could mark the end of a decade of growing enmity between the two neighbors. Together with the withdrawal of South African troops from Angola following the negotiation of a joint South African-Angolan disengagement agreement, the treaty has been applauded internationally and appears to have the support of the other Black African states in the sub-continent. Both these events are seen by many as steps in the right direction, and seem to have established a significant momentum towards the abolition of racial discrimination, towards peaceful co-existence with our neighbors, and especially towards the resolution of South Africa's thorniest external problem: the achievement of a political settlement in Namibia.

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These events have enhanced substantially the prospects for stability and prosperity in the Southern African subcontinent.

History and Economics

Gold was discovered on the Witwatersrand in 1886. Since then, it has taken 26 million man-years of labor applied over nearly a century to mine, mill and deposit on-surface almost 4 billion tons of gold-bearing ores in the process of producing more than 38,000 metric tons (1.2 billion ounces) of gold, and, since uranium production started in 1952, nearly 300 million pounds U_3O_8. Gold mining started on the surface outcrops and has now reached depths of 12,000 feet, with plans to mine to 15,000 feet.

Although the association of uranium with the Witwatersrand ores has been known since 1923, it was the joint British-American search for uranium for the Manhattan Project that resulted in the re-testing of South African ores and the establishment of large quantities of uranium in the late 1940s. In 1952 the first uranium plant opened at West Rand Consolidated Mines. By 1959, there were 26 mines with 17 uranium plants, producing 13 million pounds U_3O_8—all committed to the Combined Development Agency (CDA). Between 1959 and 1965, the demand for uranium for nuclear weapons declined dramatically, resulting in cutbacks so that by 1965, South African uranium production had fallen to 5.5 million pounds U_3O_8 from eight mines. The 1970s saw the industry respond to the recovery in the uranium market with large expansions, and by 1981, production had peaked at 15.8 million pounds U_3O_8.

Production in 1983 was 15.7 million pounds U_3O_8, representing approximately one-sixth of free world output. This was produced by 14 mines from 17 plants which treated approximately 75 million tons at an average grade of under 1/3 pound per ton treated. This grade is so low because it includes three large tailings treatment operations which processed about 45 million tons in the year at an average grade of less than 0.20 pounds U_3O_8 per ton treated, which accounted for one-fifth of total national production. Excluding such surface tailings operations, the industry's average grade was 0.37 pounds U_3O_8 per ton treated for the year.

All South African producers, except three, are gold by-product producers. Two of these exceptions are primary producers; namely, the Beisa and Harmony Mines, and one, Palabora, produces uranium as a by-product from copper production. Palabora produces nearly 500,000 pounds U_3O_8 per annum, representing 3 percent of South Africa's total production. Vaal Reefs is by far the largest single by-product producer with an output of approximately 4 million pounds U_3O_8 per annum, which represents 26 percent of South Africa's total output. This large facility mines and mills 9.5 million tons of ore a year to produce 80 tons of gold, and in the process, puts 32,000 men underground, to an average depth of more than 6,000 feet each day.

The viability of the South African gold and uranium industry can be illustrated by reference to the change in certain economic indicators over the ten-year period from 1973 to 1982 (Table 1).

Table 1

SOUTH AFRICAN ECONOMIC INDICATORS

Economic Indicator	1973	1982	Percent Change
Average working cost per ton ore milled	R10.51	R47.25	+35
Average declared recovery grade, grams per ton	11.2	6.4	-43
Average declared uranium grade treated, pound/ton	0.53	0.35	-34
Average declared working profit per ton milled	R13.42	R45.45	+238
Average London gold price, per ounce	$97.20	$375.89	+287
Average gold receipts, per ounce	R65.08	R412.41	+534
US Dollar/Rand Exchange Rate	1.49	0.91	-39

From Table 1 it is evident that, despite a substantial increase in working cost, and a decline in average grade, working profit expressed in Rands increased substantially due to the increase in the gold price and the strengthening of the US dollar relative to the Rand. This latter phenomenon acted as a cushion to falling gold and uranium prices, as prices for all South Africa's gold and most of its uranium are denominated in US dollars.

Industry Structure

The South African gold and uranium industry is con-

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trolled and administered by six mining financial groups, known as mining houses: Anglo-American Corporation, General Mining Union Corporation, Gold Fields of South Africa, Rand Mines, Johannesburg Consolidated Investment company, and Anglovaal. The mining houses are represented by an organization known as the Chamber of Mines, which provides certain services common to the industry, such as labor recruitment, wage negotiations, safety control, research and marketing. For the purpose of uranium marketing, the Chamber has a subsidiary known as the Nuclear Fuel Corporation of South Africa (Nufcor). Nufcor is a centralized uranium marketing organization, through which all of South Africa's uranium is sold, except for that of Palabora, which is independent of the Chamber.

Nufcor also processes the ammonium diuranate (ADU) slurry from all the Chamber producers at a central filtration and calcining plant. The natural uranium concentrates are then sampled, packed and shipped to Nufcor's various customers. The Nufcor product is known to be one of the most homogenized available worldwide.

Nufcor is one of the largest suppliers of uranium in the free world, having supplied, since its inception in 1952, approximately 270 million pounds U_3O_8, equivalent to about 15 percent of free world consumption since that date. This has been achieved without a single contract default. It has been able to provide this impeccable security of supply by virtue of its spread of low-cost supply sources. Furthermore, because of its unique structure and by-product supply sources, it has the flexibility to vary production to meet market circumstances relatively quickly.

The South African uranium industry operates under the legal framework of the Atomic Energy Act of 1967. This Act is administered by a government body, the Atomic Energy Corporation (AEC). All uranium contracts require AEC approval, and exports are controlled by the issue of export permits. AEC policy fully recognizes private enterprise, and the commercial aspects of uranium business are left largely to the industry. Its controls are directed to issues of national policy, such as ensuring peaceful usage of uranium and the adherence to international safeguards requirements. The Atomic Energy Act contains certain requirements of confidentiality in respect of uranium matters, the roots of which go back to the days of procurement by the Combined Development Agency.

Marketing

As the marketing arm of the Chamber of Mines producers, Nufcor advises its members on the uranium market and marketing. However, it has little control over individual producers' production levels. Producers' needs and motivations can and do differ, depending on their individual circumstances, such as cost structure, contract positions and stockpiles. Nufcor endeavors to meet the needs of all its members while at the same time maintaining maximum effectiveness in the market. These objectives understandably are difficult to achieve sometimes, especially in a buyer's market, when individual producers' needs tend to differ more than in a seller's market.

Nufcor's traditional modus operandi is to allocate the contracts it negotiates on a shared basis under which producers elect to participate or not. Under this system, Nufcor calls for price and quantity specifications from producers in advance. It then contracts and allocates among those whose criteria are met. Notwithstanding this system, Nufcor does act as the agent in contracts entered into directly between producers and consumers, if producers so desire. However, the allocation system is more prevalent, especially in difficult market conditions.

South Africa has traditionally contracted on a long-term basis with strong emphasis on creating lasting relationships with customers, often with consumer finance arrangements, and with annual price negotiations. Nufcor's current activity has been centered around preserving its existing contract positions, South African producers in general having elected to stockpile surplus production rather than sell in the spot market. A few higher-cost producers have shut down production, West Rand Consolidated, a primary producer, having been the first to do so in 1982. Harmony, another primary producer, recently announced its intention to close its Merriespruit plant, which will result in a 28-percent decrease in output. More recently, Western Deep Levels announced the possibility of its terminating uranium production and converting its plant to a gold plant. These producers have stockpiles or back-up arrangements to meet contract commitments.

Given the current high interest rate structure in South Africa, the possibility of a weaker US Dollar/Rand exchange rate and little prospect of substantially higher uranium prices in the short to medium-term, the need of the few higher cost gold and uranium producers with uncommitted supplies to enter the spot market should be greater than those of the richer mines. However, in conflict with this need is the industry's concern that entering the spot

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market could have a "negative feedback effect" on annual contract price renegotiations. To date, this concern has tended to outweigh the desire to contract in the spot market.

Markets for South African Uranium

The majority of South Africa's uranium has been sold under long-term contracts to Europe and the Far East. Nuexco estimates the distribution of South Africa's customers in 1984 to be as indicated in Table 2.

Table 2

ESTIMATED DISTRIBUTION OF 1984 SOUTH AFRICAN PRODUCTION COMMITMENTS

	Pounds U_3O_8 (millions)	Percent of Total
Europe	6.2	43.6
Far East	3.6	25.4
U.S.A.	3.0	21.0
Other[1]	1.4	10.0
TOTAL	14.2	100.0

[1] Includes supplies to Koeberg units 1 and 2, Escom's nuclear power station (two 922-MWe PWRs).

Nuexco's estimate of South Africa's uncommitted production to 1992 (excluding existing inventories) is listed in Table 3, and Nuexco's estimate of unfilled requirements in the USA (including producers) for the same period is shown in Table 4.

In comparing South Africa's uncommitted production with US unfilled requirements, it is evident that both countries' uranium positions are complementary; that each needs the other, and that they should be brought together by market forces. However, for this to occur, certain perceptions and market behavior will need to change. Consequently, I have attempted to identify certain forces that exist as well as conditions that are necessary for such a meeting of the ways between our two countries in the uranium market.

1. South Africa's existing markets are fast becoming fully supplied, and traditional customer countries have far longer-term inventory positions than has the USA. South African producers will soon have to face the decision of whether to sell in the USA, where the majority of new business lies, at lower spot-related prices. The alternatives are:

a. to stockpile;
b. to shut down high-cost facilities;
c. to sell.

At the March 31 Exchange Value of $17 per pound U_3O_8, the third alternative requires penetrating the psychological barrier of having to sell at one of the lowest-ever real uranium prices available to the industry.

In general, it could be predicted that South African producers will become more individualistic as they are forced to adapt to meet their own particular circumstances. The US market awaits those that elect to continue to produce and sell uranium.

2. The USA is fast becoming a large importer of uranium as its own high cost production is going out of business. US production fell from 26.8 million pounds U_3O_8 in 1982 to 20.6 million pounds in 1983, and is estimated by Nuexco to decline to second world position alongside South Africa at about 15 to 16 million pounds in 1984, as Canada assumes the lead. The USA imported 12.3 million pounds U_3O_8 in 1983 and, taking account of exports in that year, was a net importer of 6.3 million

Table 3

SOUTH AFRICAN UNCOMMITTED PRODUCTION
(Millions of Pounds U_3O_8)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
South Africa	1.6	2.5	5.5	7.1	8.1	9.5	9.5	10.4	11.8
Free World Total	6.7	11.6	20.7	22.7	30.3	34.1	38.8	51.1	58.2
Percent of Free World Total	24	22	27	26	27	28	24	20	20

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Table 4

US UNFILLED REQUIREMENTS
(Millions of Pounds U_3O_8)

	1984	1985	1986	1987	1988	1989	1990	1991	1992
U.S.A.	1.8	5.2	5.5	8.2	9.7	15.9	21.9	20.0	24.7
Free World	1.9	5.5	5.7	8.9	11.9	19.9	26.2	28.7	34.9
Percent of Free World Total	95	95	96	92	82	80	84	70	71

pounds. This net import requirement should increase substantially as the USA moves to meet its unfilled requirements from lower-cost imports.

3. As a net importer and in order to minimize risk, it would be prudent for the US industry to spread its sources geographically, in a manner similar to the Japanese, so as not to become too dependent on any single supply source. South Africa must be considered since it is the world's second largest exporter of uranium and because of its impeccable delivery record. Furthermore, South Africa offers a real alternative to Canadian pricing and upgrading policies as well as to the uncertainties of Australian government and labor policies towards uranium exploitation.

4. There is a strong need for compromise by both countries on commercial terms. Whereas South Africa is accustomed to annual renegotiations at long-term contract prices above spot prices, US utilities have a preference to contract at prices related to the spot and near-term markets. US utilities are subject to the scrutiny of their Public Service Commissions, not to mention the public, and who can criticize transactions at market prices? Somewhere, with the aid of the market forces I have referred to, a compromise could be reached. For example, this could be realized with the mutual acceptance of "intermediate-term pricing," with the use of base pricing plus escalations with market overrides. In time we could see a convergence of spot and long-term prices and, who knows, we might one day see Nuexco quoting a "contract value" in addition to its Exchange Value!

5. Existing perceptions and attitudes need to change. US utility managers should travel to South Africa to see the country for themselves and to draw their own conclusions about the political and commercial desirabilities of doing business with us. Whereas some business has been done in the USA by Nufcor in the past, this has been confined largely to fuel fabricators, other producers and trading companies. Very few transactions have been conducted with US utilities. Furthermore, the Westinghouse litigation and the US antitrust lawsuits made the USA an uninviting place for Nufcor to do business during the 1970s, especially with the market opportunities that existed elsewhere at the time.

6. Finally, strict confidentiality would be necessary for South African producers and US utilities to contract with each other. Not only does our Atomic Energy Act require this, but as I have mentioned, the South African industry would want to prevent the market "feedback effect" which could jeopardize its existing situation. On the US side, utilities would no doubt prefer to avoid publicity, so as to minimize criticism and adverse publicity for trading with South Africa. This could be difficult to achieve given the reporting requirements of the PUCs. However, there are ways of contracting to reduce publicity, such as the use of intermediaries, swaps and even barter arrangements.

Conclusion

I have endeavored to provide you with a better understanding of the South African uranium industry, its economics, its structure and its modus operandi. I have also attempted to identify the unique market situation that has emerged between US utilities and South African producers. Finally, I have mentioned some of the forces and conditions that need to be recognized and met for this market situation to be exploited. Markets are dynamic and to succeed in them, timing is essential. It is Nuexco's belief that the time is right for the opportunity that exists to be exploited. Should we not act, other forces will doubtless emerge which could result in lost initiatives.

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EXECUTIVE SUMMARY
REPORT 189
(All data as of April 30, 1984)

Exchange Value
$17.75, up $0.75

The **Exchange Value** is **$17.75** per pound U_3O_8, up $0.75 since last month. No recent uranium sales are reported, although three transactions concluded late in 1983, two involving long-term deliveries, are listed in this Report.

Supply-Demand Ratio
rose to 2.2:1

Active spot and near-term **uranium supply** amounts to **7.4 million** pounds U_3O_8 equivalent, up 1.3 million pounds from last month. Active spot and near-term **uranium demand** totals **3.4 million** pounds, down 400 thousand pounds. The spot and near-term **supply-demand ratio** rose to **2.2:1.**

Transaction Value
fell $1.35, to $17.90

The **Transaction Value** is **$17.90** per pound U_3O_8, down $1.35 since last month. It includes 10 transactions involving a total of 2.5 million pounds U_3O_8 and equivalent UF_6 and covers a period of 5 months.

Loan Use Charge Rate
unchanged at 6%

The **Loan Use Charge Rate** remains **6 percent** per annum.

Conversion Value
unchanged at $0.80

The **Conversion Value** is **$0.80** per pound U as UF_6, unchanged since last month. No secondary market conversion transactions are reported. Active secondary market supply of conversion services for delivery within three years totals 2.9 million pounds U as UF_6; no active demand is reported.

SWU Values
$105 for DOE-origin (FY85)
$80 for non-DOE origin
(delivery within 15 months)

The **SWU Values** are **$105** per SWU of DOE origin and FY85 delivery, up $5 since last month, and **$80** per SWU of non-DOE origin, unchanged since last month. Four SWU transactions are reported, involving a total of 240 thousand SWUs. Active secondary market SWU supply amounts to approximately 1.7 million SWUs, while active demand totals 625 thousand SWUs.

Japan

Annual negotiations between Japanese utilities and some of their important long-term uranium suppliers indicate that the downward price trend of recent years has slowed considerably.

South Africa

The Beisa mine will be shut down this year. Nationally, first quarter production results were consistent with South Africa's stable production rate.

Analysis and Commentary

An analysis of recent progress made on non-US nuclear power units under construction confirms the strength of the programs in Japan and France, and shows that non-US nuclear generating capacity is likely to grow considerably during the next two years.

Basic Considerations

The deenrichment swap is probably the most common form of secondary market SWU transaction, and this Report explains the mechanics of it.

Focus

Japan has developed advanced centrifuge enrichment technology, although plans for commercial-scale facilities are likely to develop slowly.

Raw Materials

This Report presents the second half of a two-part article on the Rossing project in Namibia.

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CURRENT MARKET DATA

NUEXCO MARKET DATA
Report 189
April 30, 1984

	Market Values	Active Supply[1] (thousands)	Active Demand[1] (thousands)
Exchange Value	**$17.75** lb. U_3O_8	7,410	3,380
Conversion Value	**$0.80** lb. U in UF_6	2,930	0
SWU Values			
DOE origin, FY85 delivery	**$105** SWU	1,705	625
non-DOE origin, delivery within 15 months	**$80** SWU		
Loan Use Charge Rate	6% annum	5,545	250

Transaction Value	$/lb. U_3O_8	Millions of Pounds	Number of Transactions	Number of Months
	17.90	2.5	10	5

[1]Supply and demand tables in the *Current Market Data* section of this Report detail the numbers for each category. Quantities of SWUs are not referenced to SWUs of a particular origin.

DEFINITIONS

1. The Exchange Value is Nuexco's judgment of the price at which transactions for significant quantities of natural uranium concentrates could be concluded as of the date indicated.
2. The Conversion Value is Nuexco's judgment of the price at which spot and near-term transactions for significant quantities of conversion services could be concluded in the secondary market as of the date indicated.
3. The SWU (Separative Work Unit) Values represent Nuexco's judgment of the price at which transactions for the sale of significant quantities of SWUs of stated origin for delivery in the specified time period could be concluded as of the date indicated.
4. The Loan Use Charge Rate is Nuexco's judgment of the annual interest rate at which uranium loans could be concluded as of the date indicated.
5. The Transaction Value is a weighted average price of recent natural uranium sales transactions. The calculation is based on prices paid in:
   a. Transactions closed within the previous three-month period for which delivery is scheduled within one year of the transaction date;
   b. At least ten transactions;
   c. Transactions involving a sum total of at least 2 million pounds U_3O_8 equivalent.

   The sample time is extended as necessary to include these minima. Other currencies are converted to US dollars using conversion rates in effect on or near the transaction date.

DERIVATIONS

1. All Market Values are based on:
   a. Data from recently completed transactions.
   b. Data from pending transactions.
   c. Firm bids to buy or borrow, and firm offers to sell or lend.
   d. Prices purchasers or rates borrowers have expressed a willingness to pay, but for which Nuexco is not aware of firm bids to buy or borrow, and prices sellers or rates lenders have expressed a willingness to offer, but for which Nuexco is not aware of firm offers to sell or lend.
2. For the SWU Values, Nuexco converts SWU prices at varying tails and product assays to equivalent SWU prices at the DOE Reference Transaction Tails Assay (presently 0.20 weight-percent U^{235}) and a product assay of 3.0 weight-percent U^{235}, assuming feed costs corresponding to Nuexco's Exchange and Conversion Values determined as of the same date.

COMMENTS

1. Prices associated with deliveries under old or renegotiated contracts or other than arm's-length transactions, are not considered in the determination of these Market Values.
2. In the determination of the Conversion Value, Nuexco does not consider transportation charges other than those customarily provided by primary suppliers of conversion services.
3. The price of conversion services or SWUs delivered under long-term contracts with primary suppliers are not considered in the determination of either the Conversion or SWU Values.
4. In calculating the Transaction Value, Nuexco does not consider the price of uranium delivered in connection with contracts which call for "market price" mechanisms. This exclusion applies particularly to contracts in which delivery prices are expressed as a function of future Exchange Values or any other indeterminate variable. Also excluded from consideration are all data in which the delivery price is defined in such a way that it cannot currently be determined.

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NUEXCO REPORT 189 FIGURES OF THE MONTH (April 30, 1984)	This Month (Report 189)	Last Month (Report 188)	12 Months Ago (Report 177)
Exchange Value[1]	17.75	17.00	23.25
Transaction Value[1]	17.90	19.25	21.40
Conversion Value[2]	0.80	0.80	1.20
Loan Use Charge Rate[3]	6%	6%	6%
Near-Term Uranium Supply[4]	7.4	6.1	8.6
Near-Term Uranium Demand[5]	3.4	3.8	2.6
Near-Term Supply-Demand Ratio	2.2	1.6	3.4
Recent Uranium Sales:			
Number of Transactions[6]	0*	9	6
Quantity of Material[7]	—	1.5-3.0	7.0-12.0
Nuexco SWU Values:[8]			
DOE origin, FY85 delivery	105	100	—
non-DOE origin, delivery within 15 months	80	80	—
USDOE SWU Prices:			
USEC	135.00	135.00	—
AFC	153.00[9]	153.00[9]	138.65
Requirements	157.00[9]	157.00[9]	149.85
Market Value of Enriched UF_6[10,11]:			
2.5 w/o U^{235}	555.72	530.76	616.52
3.0 w/o U^{235}	715.89	683.62	789.24
3.5 w/o U^{235}	879.36	839.63	965.04
4.0 w/o U^{235}	1,045.09	997.79	1,143.13

* Three transactions from late 1983 are reported.

[1] US $ per pound U_3O_8 equivalent.

[2] US $ per pound U as UF_6.

[3] Per annum.

[4] Active inquiries to sell, for delivery within 12 months after contract signing (millions of pounds U_3O_8).

[5] Active inquiries to purchase, for delivery within 12 months after contract signing (millions of pounds U_3O_8).

[6] Uranium sales only; does not include loans, conversion, or SWU transactions.

[7] Millions of pounds U_3O_8 equivalent.

[8] US $ per SWU.

[9] Effective 10/1/84.

[10] Calculated using the Nuexco Exchange Value, Conversion Value, and 0.20 percent tails assay. From 2/28/83 through 9/30/83, calculations used the Nuexco SWU Value for the relevant fiscal year. From 10/31/83 through 2/29/84, calculations used the Nuexco SWU Value for DOE origin and FY84 delivery. As of 3/31/84, calculations use the Nuexco SWU Value for DOE origin and FY85 delivery.

[11] US $ per KgU as UF_6.

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